

### Better than perfect enzymes.

The problem is to find out why some enzymes show faster than diffusion kinetics, as stated on the wikipedia.

[http://en.wikipedia.org/wiki/List\\_of...s\\_in\\_chemistry](http://en.wikipedia.org/wiki/List_of...s_in_chemistry)

 Quote by: <http://en.wikipedia.org/wiki/Enzyme>

*Enzymes / 'enzaimz/ are large biological molecules responsible for the thousands of metabolic processes that sustain life.[1][2] They are highly selective catalysts, greatly accelerating both the rate and specificity of metabolic reactions, from the digestion of food to the synthesis of DNA. Most enzymes are proteins, although some catalytic RNA molecules have been identified. Enzymes adopt a specific three-dimensional structure, and may employ organic (e.g. biotin) and inorganic (e.g. magnesium ion) cofactors to assist in catalysis.*


*In enzymatic reactions, the molecules at the beginning of the process, called substrates, are converted into different molecules, called products. Almost all chemical reactions in a biological cell need enzymes in order to occur at rates sufficient for life. Since enzymes are selective for their substrates and speed up only a few reactions from among many possibilities, the set of enzymes made in a cell determines which metabolic pathways occur in that cell.*

*Like all catalysts, enzymes work by lowering the activation energy ( $E_a$ ) for a reaction, thus dramatically increasing the rate of the reaction. As a result, products are formed faster and reactions reach their equilibrium state more rapidly. Most enzyme reaction rates are millions of times faster than those of comparable un-catalyzed reactions. As with all catalysts, enzymes are not consumed by the reactions they catalyze, nor do they alter the equilibrium of these reactions. However, enzymes do differ from most other catalysts in that they are highly specific for their substrates. Enzymes are known to catalyze about 4,000 biochemical reactions.[3] A few RNA molecules called ribozymes also catalyze reactions, with an important example being some parts of the ribosome.[4][5] Synthetic molecules called artificial enzymes also display enzyme-like catalysis.[6]*

*Enzyme activity can be affected by other molecules. Inhibitors are molecules that decrease enzyme activity; activators are molecules that increase activity. Many drugs and poisons are enzyme inhibitors. Activity is also affected by temperature, pressure, chemical environment (e.g., pH), and the concentration of substrate. Some enzymes are used commercially, for example, in the synthesis of antibiotics. In addition, some household products use enzymes to speed up biochemical reactions (e.g., enzymes in biological washing powders break down protein or fat stains on clothes; enzymes in meat tenderizers break down proteins into smaller molecules, making the meat easier to chew).*

 Quote by: **google search for diffusion**

*In Chemistry, the term diffusion is defined as the movement of particles of a fluid from a place of relatively high concentration to a place with low concentration.*

 Quote by: **google search for kinetics**

*Chemical kinetics is the study of the speed with which a chemical reaction occurs and the factors that affect this speed.*

The reactions must be taking place before the diffusion can take place, as, the spreading out of enzymes follows the signal or reaction of the enzymes. if the enzymes were to all exhibit this pattern, then it would be common and accepted, but, it is not the case. i think the reactions must take place first for some of the enzymes as then it would leave a known place for the enzyme to diffuse to - have you ever tried to move your arm before thinking about it?

Conversely, if the reaction goes after the diffusion, then the diffusion is natural - not guided. this would be like throwing a bucket of oil into a river and watching it diffuse naturally.

---

### Homochirality.

This problem asks what is the origin of homochirality in amino acids and sugars?

 Quote by: <http://en.wikipedia.org/wiki/Homochirality>

*Homochirality describes a property of some materials that are composed of chiral units. A substance is said to be homochiral if all the constituent units are molecules of the same chiral form (enantiomer). In biology, homochirality is a common property of amino acids and sugars. The origin of this phenomenon is not clearly understood. It is unclear if homochirality has a purpose; however it appears to be a form of information storage. [1] One suggestion is that it reduces entropy barriers in the formation of large organized molecules.[2] It has been experimentally verified that amino acids form large aggregates in larger abundance from enantiopure substrates than from racemic ones.[citation needed]*

*Homochirality is said to evolve in three distinct steps: mirror-symmetry breaking creates a minute enantiomeric imbalance and is key to homochirality, chiral amplification is a process of enantiomeric enrichment and chiral transmission allows the transfer of chirality of one set of molecules to another.*

*It is also entirely possible that homochirality is simply a result of the natural autoamplification process of life—that either the formation of life as preferring one chirality or the other was a chance rare event which happened to occur with the chiralities we observe, or that all chiralities of life emerged rapidly but due to catastrophic events and strong competition, the other unobserved chiral preferences were wiped out by the preponderance and metabolic, enantiomeric enrichment from the 'winning' chirality choices[citation needed]. The emergence of chirality consensus as a natural autoamplification process has been associated with the 2nd law of thermodynamics.[3]*

It seems, in simpler english, that amino acids and sugars would group together if similar into homochirals.


This means that they are not repelling the like things, like in all of science! if you take two electrons, they will repel each other and polarize, yes? of course, this is not true in society, where similar things attract each other. for this reason, i would say that homochirality is forming a society of similar acids and sugars, and, they are attracted to each other because they are part of the same molecule - as if they were produced by similar things and stayed together for the sake of 'survival.' if they were to be loosed on the system, they would have to get together into one molecule to make sure they can combine their efforts to do what it is they do.

They say that they come from outside the body too. if the body needs to process these things, maybe they bunch them together inside molecules to eat at them and then store them? yes, this is probably something to do with storing stuff for the body to eat, but why do they group together? maybe it is to keep them easy to find? if it is inside a molecule, then they can eat the whole molecule at once.

If the body groups food together, it is easier to find. if it were a sugar floating around, maybe it would be too small to process or find? i would say the origin of homochirality is to keep food easy to digest.

---

### Protein folding.

 Quote

by: [http://en.wikipedia.org/wiki/List\\_of\\_unsolved\\_problems\\_in\\_chemistry](http://en.wikipedia.org/wiki/List_of_unsolved_problems_in_chemistry)

*Is it possible to predict the secondary, tertiary and quaternary structure of a polypeptide sequence based solely on the sequence and environmental information? Inverse protein-folding problem: Is it possible to design a polypeptide sequence which will adopt a given structure under certain environmental conditions?*

This is a very important problem if you ask me.

 Quote by: [http://en.wikipedia.org/wiki/Protein\\_folding](http://en.wikipedia.org/wiki/Protein_folding)

*Protein folding is the process by which a protein structure assumes its functional shape or conformation. It is the physical process by which a polypeptide folds into its characteristic and functional three-dimensional structure from random coil.[1] Each protein exists as an unfolded polypeptide or random coil when translated from a sequence of mRNA to a linear chain of amino acids. This polypeptide lacks any stable (long-lasting) three-dimensional structure (the left hand side of the first figure). Amino acids interact with each other to produce a well-defined three-dimensional structure, the folded protein (the right hand side of the figure), known as the native state. The resulting three-dimensional structure is determined by the amino acid sequence (Anfinsen's dogma).[2] Experiments [3] beginning in the 1980s indicate the codon for an amino acid can also influence protein structure.*

*The correct three-dimensional structure is essential to function, although some parts of functional proteins may remain unfolded.[4] Failure to fold into native structure generally produces inactive proteins, but in some instances misfolded proteins have modified or toxic functionality. Several neurodegenerative and other diseases are believed to result from the accumulation of amyloid fibrils formed by misfolded proteins.[5] Many allergies are caused by incorrect folding of some proteins, for the immune system does not produce antibodies for certain protein structures.[6]*

If you were to believe in determinism, then nothing is random. seeing as how nothing is random, sooner or later we will be able to predict the formation of proteins before they fold. This is because they will always fold the same way if the environment and structure are the same, as, how else can they form?

So, if the structure is a b or c, and the environment is x y or z, then there will be similar reactions. if the structure dictates that previously the protein folded in a certain way you need to remember that two structures may be exactly the same, but the habitat might not be. but, if they are moving through the blood merrily folding at the same point before they wash away, then you could say they are all the same, or, they conduct the same function.

Exactly what do proteins do? they feed the body. how can this be important? well, they could feed the body differently, or, in different ways. they feed the body the same thing though, being proteins, so what is the big deal? i think it is to get rid of, or, decrease the production of impaired ones that lead to allergies. this also means that all proteins forming in the same space will congregate to form the allergy, or it is the properties of the area they are forming in. either way, there is a pattern, and that leads to allergies. this comes from the actual protein itself, the food taken in you could say, and the effect of that food or protein on the body.

If the polypeptide forms a certain way in different places, then it is because of not the habitat or environment, but rather other proteins around it. this is like a school pupil putting on a uniform. if it was to be that the polypeptide was to rebel, then there would be no similarity in any of the proteins, yes?

 Quote by: <http://en.wikipedia.org/wiki/Polypeptide>

*Peptides (from Gr. πεπτός, "digested", derived from πέσσειν, "to digest") are short chains of amino acid monomers linked by peptide (amide) bonds. The covalent chemical bonds are formed when the carboxyl group of one amino acid reacts with the amino group of another. The shortest peptides are dipeptides, consisting of 2 amino acids joined by a single peptide bond, followed by tripeptides, tetrapeptides, etc. A polypeptide is a long, continuous, and unbranched peptide chain. Hence, peptides fall under the broad chemical classes of biological oligomers and polymers, alongside nucleic acids, oligo- and polysaccharides, etc.*

*Peptides are distinguished from proteins on the basis of size, and as a benchmark can be understood to contain approximately 50 amino acids or fewer[citation needed]. Proteins consist of one or more polypeptides arranged in a biologically functional way, often bound to ligands such as coenzymes and cofactors, or to another protein or other macromolecule (DNA, RNA, etc.), or to complex macromolecular assemblies. Finally, while aspects of the techniques that apply to peptides versus polypeptides and proteins differ (i.e., in the specifics of electrophoresis, chromatography, etc.), the size boundaries that distinguish peptides from polypeptides and proteins are not absolute: long peptides such as amyloid beta have been referred to as proteins, and smaller proteins like insulin have been considered peptides.*

*Amino acids that have been incorporated into peptides are termed "residues" due to the release of either a hydrogen ion from the amine end or a hydroxyl ion from the carboxyl end, or both, as a water molecule is released during formation of each amide bond.[1] All peptides except cyclic peptides have an N-terminal and C-terminal residue at the end of the peptide (as shown for the tetrapeptide in the image).*

So, you get all different sorts of peptides. if you were to want to design a peptide that has a certain composition, you would need to polarize it so it sticks together, otherwise it will break up. look at the common designs of peptides, and, then find the patterns - what is attracted to what? if you were to design a unstable protein, then it would break apart, repelling it's parts from one another.


If you were to place something together with something else, they would have to bond or they would just float around.

Now, if you want some sort of configuration from the 'base,' you need to find all the elements of the protein you are folding, and then arrange them so that they will continue to bond, this can be done by sticking 'agreeable,' or friendly elements on the ends. hell, maybe t is possible to continue the same sequence until it completely takes up the whole body? that would be repetition though.

So, to get them to bond, you need to arrange your hydrogen at the ends of the peptide. continuously arranging hydrogen at the ends of the peptide could make for a great peptide, but i suggest ending them with something that is not 'friendly' or they could do something bad to the animal.


---

## Protein design.

 Quote

by: [http://en.wikipedia.org/wiki/List\\_of\\_unsolved\\_problems\\_in\\_chemistry](http://en.wikipedia.org/wiki/List_of_unsolved_problems_in_chemistry)

*Is it possible to design highly active enzymes de novo for any desired reaction?*

 Quote by: [http://en.wikipedia.org/wiki/Protein\\_design](http://en.wikipedia.org/wiki/Protein_design)

*Protein design is the rational design of new protein molecules to fold to a target protein structure, with the ultimate goal of designing novel function and/or behavior. Proteins can be designed from scratch (de novo design) or by making calculated variations on a known protein structure and its sequence (known as protein redesign). Rational protein design approaches make protein-sequence predictions that will fold to specific structures. These predicted sequences can then be validated experimentally through methods such as peptide synthesis, site-directed mutagenesis or artificial gene synthesis.*

*Rational protein design dates back to the mid-1970s, although initial protein design approaches were mostly based on sequence composition and did not account for specific interactions between side-chains at the atomic level.[1] Recently, however, improvements in molecular force fields, protein design algorithms, and structural bioinformatics, such as libraries of amino acid conformations, have enabled the development of advanced computational protein design tools. These computational tools can make complex calculations on protein energetics and flexibility, and perform searches over enormous configuration spaces, which would be unfeasible to perform manually. Thanks to the development of computational protein design programs and important successes in the field (e.g. see examples below), rational protein design has become one of the most important tools in protein engineering.*


The reaction you desire needs to be rational, researchable - it happens again outside the blood stream - and safe. after that, due to the state of chemistry, it will be easy to find the reactions you need through already done work.

The trick, of course, is to get 'this' into a enzyme that works. if you were to stick ethane into a enzyme, it would probably not work, as that is poisonous to the body. so, you need or can only work with biomass or safe synthetic elements.


The trick again of course is to bond all the things you want with hydrogen, and, then get creative.

---

### **Nonbornyl cation.**

 Quote

by: [http://en.wikipedia.org/wiki/List\\_of\\_unsolved\\_problems\\_in\\_chemistry](http://en.wikipedia.org/wiki/List_of_unsolved_problems_in_chemistry)  
*Solvolysis of the norbornyl cation: Why is the norbornyl cation so stable? Is it symmetrical? If so, why? This problem has been largely settled for the unsubstituted norbornyl cation, but not for the substituted cation. See Non-classical ion.*

 Quote by: <http://en.wikipedia.org/wiki/Norbornyl>

*Norbornane (also known as bicyclo[2.2.1]heptane) is an organic compound and a saturated hydrocarbon with chemical formula C<sub>7</sub>H<sub>12</sub>. It is a crystalline compound with melting point 88 °C. The carbon skeleton is a cyclohexane ring with a methylene bridge in the 1,4- position, and is a bridged bicyclic compound. The compound can be synthesized by hydrogenation of the related compounds norbornene and norbornadiene. The norbornyl cation (C<sub>7</sub>H<sub>11</sub><sup>+</sup>) is of great scientific interest in relation to non-classical ions.*

*The compound got its name from bornane which has three methyl groups and is the carbon skeleton for camphor (bornanone). In bornane, there is one methyl group attached to a carbon at the base of the bridge and two methyl groups attached to the carbon at the apex of the bridge. The prefix nor refers to the stripping of the methyl groups from the original bornane.*

This molecule is so stable because it is made up of a lot of the same elements fixed to a small area. or, it could also be be that you can cut it in half? if you were to cut it in half, you would have half a triangle and half a square. this means, if it is so stable, that a triangle and a square would be the simplest shapes, and, that the less angles it has, the less stress is placed on each branch. so, each branch must have very little stress on it, as, each would be a place where there are three branches, one branch replaces a element - there are two instances where there is only one hydrogen atom on each branch, but, usually there are two, and, if there is only one, it is because of the branch replacing the atom.

It is hard to get seven carbon atoms together so closely without reverting back to this. i can see there being another hydrogen atom and then it being just as strong, coming in where the 'severe angle' is. if this were engineering, it would be




beautifully designed, and seeing as how engineering does not pervert nature, this holds true to nature as well. if we were to observe this cation, we would see that it is closely packed, and inverted, without being too close.

Then, we could observe it from the stand point of mathematics. if the prime number of 7 is the 'inside' of the cation or whatever you want to call it, then it has a non divisible amount of points - points that are not divisible by two, so, you cannot really 'break' it without one of the atoms holding it together in a different place.

---

## Water.

---

 Quote

by: [http://en.wikipedia.org/wiki/List\\_of\\_unsolved\\_problems\\_in\\_chemistry](http://en.wikipedia.org/wiki/List_of_unsolved_problems_in_chemistry)  
*Why are some organic reactions accelerated at the water-organic interface?*

Because oxygen and hydrogen are very volatile in the sense that they can fuel fires. water also conducts electricity, and, will have the signals and reactions 'rip' through it.


If you were to throw water onto an electric circuit, it would conduct the electricity everywhere. this is because of the conductivity of oxygen in the water, comprising of 66% of the water make up. water has a melting point of 100 degrees centigrade, and, this is the way point for all measurement of temperature. it is safe to say we will be boiling at the same point. this is because our blood is mainly made up of water. this means that we will be electrocuted if we touch a wire with too much voltage.

The water conducts reactions of an electrical signal type faster than other organic substances because it is a better conductor than those things. like fat, if you were to observe the transmission rate of fat and glucose compared to water, and, if you were to submerge fat in water, it would react to becoming fuel faster than it would if it were glucose on glucose.

---

## Bond rotation barriers.

---

 Quote

by: [http://en.wikipedia.org/wiki/List\\_of\\_unsolved\\_problems\\_in\\_chemistry](http://en.wikipedia.org/wiki/List_of_unsolved_problems_in_chemistry)  
*What is the origin of the bond rotation barrier in ethane, steric hindrance or hyperconjugation?*

 Quote by: [http://en.wikipedia.org/wiki/Bond\\_rotation\\_barrier](http://en.wikipedia.org/wiki/Bond_rotation_barrier)

*Alkane conformers arise from rotation around sp<sup>3</sup> hybridised carbon carbon sigma bonds. The smallest alkane with such a chemical bond, ethane, exists as an infinite number of conformations with respect to rotation around the C–C bond. Two of these are recognised as energy minimum (staggered conformation) and energy maximum (eclipsed conformation) forms. The existence of specific conformations is due to hindered rotation around sigma bonds, although a role for hyperconjugation is proposed by a competing theory.*

*The importance of energy minimum and energy maximum is seen by extension of these concepts to more complex molecules for which stable conformations may be predicted as minimum energy forms. The determination of stable conformations has also played a large role in the establishment of the concept of asymmetric induction and the ability to predict the stereochemistry of reactions controlled by steric effects.*

*In the example of staggered ethane in Newman projection, a hydrogen atom on one carbon atom has a 60° torsional angle or torsion angle [1] with respect to the nearest hydrogen atom on the other carbon so that steric hindrance is minimised. The staggered conformation*


*is more stable by 12.5 kJ/mol than the eclipsed conformation, which is the energy maximum for ethane. In the eclipsed conformation the torsional angle is minimized.*

If you were to observe the eclipsed version, you would find that it brings the atoms closer together, and, puts stress on the molecule. if the stress handling points, or, the actual 'joints' are placed further from each other, yet not further in terms of maximum distance, then the 'joints,' if engineering is to be thought of, would show us that the maximum stress it could handle would be like that, and, it naturally slips into it's strongest 'form.' if you were to push them onto each other, it might break up, i think.

Now, the origin is that it is trying to stay together. if you were to have a few fires, and you places them to close together, you would find that they would use each other's fuel. this on the other hand, will mean they are occupying the same space, and, they do not bond like fires. if you were to observe electrons or orbitals, they repel each other. if you were to push these like things too close together, they will place unbelievable stress on the branch of the molecules, as they repel each other it will have a knock on effect to the branches, and, they will dissolve, as if two bulls were horn locked, and pushing together, these horns might break.


---

### Alpha effect.

 Quote

by: [http://en.wikipedia.org/wiki/List\\_of\\_unsolved\\_problems\\_in\\_chemistry](http://en.wikipedia.org/wiki/List_of_unsolved_problems_in_chemistry)

*What is the origin of the alpha effect? Nucleophiles with an electronegative atom and one or more lone pairs adjacent to the nucleophilic center are particularly reactive.*

 Quote by: [http://en.wikipedia.org/wiki/Alpha\\_effect](http://en.wikipedia.org/wiki/Alpha_effect)

*The alpha effect refers to the increased nucleophilicity of a molecule due to the presence of an adjacent (alpha) atom with lone pair electrons.[1] The molecule does not necessarily exhibit increased basicity compared with a similar molecule without the adjacent, electron donating atom. The effect is well established with many theories to explain the effect but without a clear winner.*

*The effect was first observed by Jencks and Carriuolo in 1960[2][3] in a series of chemical kinetics experiments involving the reaction of the ester p-nitrophenyl acetate with a range of nucleophiles. Regular nucleophiles such as the fluoride anion, aniline, pyridine, ethylene diamine and the phenolate ion were found to have pseudo first order reaction rates corresponding to their basicity as measured by their pKa. Other nucleophiles however reacted much faster than expected based on this criterium alone. These include hydrazine, hydroxylamine, the hypochlorite ion and the hydroperoxide anion.*

*In 1962 Edwards and Pearson (the latter of HSAB theory) introduced the phrase alpha effect for this anomaly. He offered the suggestion that the effect was caused by a transition state (TS) stabilization effect: on entering the TS the free electron pair on the nucleophile moves away from the nucleus causing a partial positive charge which can be stabilized by an adjacent lone pair as for instance happens in any carbocation.[4]*

*Over the years many additional theories have been put forward attempting to explain the effect. A ground state stabilizing effect assumes that the alpha lone-pair and nucleophilic electron pair destabilize each other by electronic repulsion thereby increasing the ground state and making it more reactive. Stabilization of the transition state is possible by assuming some TS free radical character or assuming that the TS has more advanced nucleophile-substrate bond formation. The polarizability of the nucleophile or involvement of intramolecular catalysis also plays a role. One recent in silico contribution did find a correlation between the alpha effect and the so-called deformation energy which is the electronic energy required to bring the two reactants together in the transition state.[5]*

*The alpha effect is also dependent on solvent but not in a predictable way: it can increase or decrease with solvent mix composition or even go through a maximum.[6]*


If we were to observe the electrons, could it be that the other atom doesn't actually donate the electrons to it? how could the atom donate the electrons and still function? i propose that the atom is affected by the electrons, yet will not steal or adopt them. if it did, then this alpha effect is where electrons change nucleus. the nucleus will rot away without the electrons, and, will loose protons, won't it?

If the electron is affecting both of the atoms, then they need to be close together. you must not forget the rest of the atom - it might have something to do with the nucleus as well. if the electrons were to repel each other, you would find them at opposite ends of the area they circulate, and, if there is another one in the other atom, then it will interfere with the electrons of the other pair.

If the electrons were to have another come into their scope of operation, they would become 'unstable' as this other electron enters the area of theirs, changes where the electrons might be, then leaving the area with the electrons going back to their previous stable state. this would be like juggling knives and having some lunatic throwing knives through the are they are flying through, or, having someone add a knife, then remove a knife all the time. this would lead to something 'unnatural,' where the juggler gets confused all the time - unstable.

---

## Gold.

 Quote

by: [http://en.wikipedia.org/wiki/List\\_of\\_unsolved\\_problems\\_in\\_chemistry](http://en.wikipedia.org/wiki/List_of_unsolved_problems_in_chemistry)

*What is the nature of strong bonds between organic-sulfur (and higher chalcogen) compounds and gold?*

 Quote by: <http://en.wikipedia.org/wiki/Chalcogen>

*The chalcogens (/ˈkælkədʒɪnz/) are the chemical elements in group 16 of the periodic table. This group is also known as the oxygen family. It consists of the elements oxygen (O), sulfur (S), selenium (Se), tellurium (Te), and the radioactive element polonium (Po). The synthetic element livermorium (Lv) is predicted to be a chalcogen as well.[1] Often, oxygen is treated separately from the other chalcogens, sometimes even excluded from the scope of the term "chalcogen" altogether, due to its very different chemical behavior from sulfur, selenium, tellurium and polonium. The word "chalcogen" is derived from a combination of the Greek word *khalkós* (χαλκός) principally meaning copper (the term was also used for bronze/brass, any metal in the poetic sense, ore or coin),[2] and the Latinised Greek word *genēs*, meaning born or produced.[3][4]*

*Sulfur has been known since antiquity, and oxygen was recognized as an element in the 18th century. Selenium, tellurium and polonium were discovered in the 19th century, and livermorium in 2000.*

*All of the chalcogens have six valence electrons, leaving them two electrons short of a full outer shell. Their most common oxidation states are −2, +2, +4, and +6. They have relatively low atomic radii, especially the lighter ones.[5]*

*Lighter chalcogens are typically nontoxic in their elemental form, and are often critical to life, while the heavier chalcogens are typically toxic.[1] All of the chalcogens have some role in biological functions, either as a nutrient or a toxin. The lighter chalcogens, such as oxygen and sulfur, are rarely toxic and usually helpful in their pure form. Selenium is an important nutrient but is also commonly toxic.[6] Tellurium often has unpleasant effects (although some organisms can use it), and polonium is always extremely harmful, both in its chemical toxicity and its radioactivity.*




*Sulfur has more than 20 allotropes, oxygen has nine, selenium has at least five, polonium has two, and only one crystal structure of tellurium has so far been discovered. There are numerous organic chalcogen compounds. Not counting oxygen, organic sulfur compounds are generally the most common, followed by organic selenium compounds and organic tellurium compounds. This trend also occurs with chalcogen pnictides and compounds containing chalcogens and carbon group elements.*

*Oxygen is generally extracted from air and sulfur is extracted from oil and natural gas. Selenium and tellurium are produced as byproducts of copper refining. Polonium and livermorium are most available in particle accelerators. The primary use of elemental oxygen is in steelmaking. Sulfur is mostly converted into sulfuric acid, which is heavily used in the chemical industry.[6] Selenium's most common application is glassmaking. Tellurium compounds are mostly used in optical disks, electronic devices, and solar cells. Some of polonium's applications are due to its radioactivity.[1]*

I would say that aged sulfur is gold, as, it looks the same nearly, sulfur comes from oil and gas, and oil and gas are old wood and charcoal. if you were to compress and heat sulfur enough, or wait for it to age, you might get gold?

---

### 'Catalism.'

 Quote

by: [http://en.wikipedia.org/wiki/List\\_of\\_unsolved\\_problems\\_in\\_chemistry](http://en.wikipedia.org/wiki/List_of_unsolved_problems_in_chemistry)

*Many mechanisms proposed for catalytic processes are poorly understood and often fail to explain all relevant phenomena*

Catalism is where the reactions take place. reactions take place because of the ingredients in mixtures or when mixtures mix. mixing is where, therefore, the catalism occurs. reactions take place because every cell or molecule is reactive to the other part of the reaction, and, if it were something thick, like oil, reactions would take a long time.

So, we could say that the thinner the mixture the quicker the reactions will take place. this is true in the body where there is heat and water in blood, making sure that the reactions get going as fast as possible. so far we know that the less dense the mixture is, the faster it reacts.

Now, why does it react? i would say it reacts because of electrons. they say that a shell is comprised of a few more electrons than normal, so, without a shell, it would react more quickly. i guess. so, while electrons lead to activity, as they are orbiting the nucleus and will be the first thing that the other atoms come into contact with, too many will lead to hampering the reaction. this would be like eating sugar - you need sugar for energy, but, too much sugar will make you tired.

I would say that all reactions are down to the electrons reaching out to grab other protons in other atoms.

---

### Ending poverty.

The world is full of poverty. there are more jobs each day, but, there remains a need for food and money. is there enough money? i bet there is. if in america ninety percent of all taxes taken in are from the rich, then there must be a way to siphon some of that money off onto the needy, yes?

Of course, when i think of poverty cures, i think of economics. if we can satisfy the need for food, then there will be no more poverty, but first we need to tweak the system.

Then i think of all the food going to waste each day, enough to feed the needy a few times over. if it were illegal to dump food, and still legal to sell a certain amount of it at the price you want to sell it for, wait, this seems impossible! how can you make a living and still feed the hungry? if you were to observe a recent problem in the west, i believe that a merchant was having his stall mauled to feed the hungry? i am not sure, but anyways, the same could happen anywhere. you cannot, up till this point, have free food and still maintain a good business all at once.

The solution? raise taxes by a percentage point or so. this will allow the state to buy food for distribution to these places. that or the state could try to set up it's own essential farms - they have enough land and money - it costs nothing to run a farm, right? let's think about this... if the state were to set some land aside for lettuce or something, then it needs seeds and lambs and stuff, a fence and a way to reap the gains. if it has no purifying reactants on it, like pesticide, then it will be yucky for people to pay for anyways. the trick word here is natural. if it is natural, nobody with money would want it. i am not talking unhealthy, i am talking clean, yet dirty.

Alternatively, the real farmers could be paid like a cent a head of corn or something they produce like this. i do not mean that you don't care what the food is like, i just want to see it natural and then delivered to the people. my mom has a vegetable garden, but she uses pesticides. it is just the leaves that get eaten anyways. the people could cut up the tomatoes looking for worms if they feel like it too.

---